



JON M. HUNTSMAN, JR.
Governor

GARY R. HERBERT
Lieutenant Governor

State of Utah

DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER
Executive Director

Division of Oil, Gas and Mining

JOHN R. BAZA
Division Director

M0470092

0001

February 10, 2009

Daniel Elcan
Oil Shale Exploration Company, LLC
3601 Spring Hill Business Park Suite 201
Mobile, Alabama 36608

Subject: Second Review of Notice of Intention to Commence Large Mining Operations, Oil Shale Exploration Company, White River Oil Shale Mine, M0470092, Uintah County, Utah

Dear Mr. Elcan:

The Division of Oil, Gas and Mining has revised its review of your Notice of Intention to Commence Large Mining Operations for the White River Oil Shale Mine, located in Uintah County, Utah, which was received September 2, 2008. These revisions were made after meeting with the Bureau of Land Management. We have attempted to consolidate comments and to avoid any conflicts with the BLM, but there are some issues raised in this review that may not be included in comments from the BLM.

The first portion of this review contains deficiencies in the plan, and we have also included a list of recommendations. These are not items that must be addressed, but we believe the plan would be more complete if you made these changes.

The comments are listed under the applicable Minerals Rule heading; please format your response in a similar fashion. Please address only those items requested in the attached technical review by sending replacement pages of the original mining notice using **redline and strikeout** text so we can see what changes have been made. After the notice is determined technically complete and we are prepared to issue final approval, we will ask that you send us two clean copies of the complete and corrected plan. Upon final approval of the permit, we will return one copy stamped "approved" for your records.

The Division will suspend further review of the Notice of Intention until your response to this letter is received.

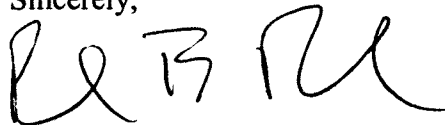


0001

Page 2
Daniel Elcan
M0470092
February 10, 2009

If you have any questions in this regard please contact me at (801) 538-5261. Review comments are followed by the reviewer's initials: Paul Baker, Tom Munson (801) 538-5321, or Leslie Heppler (801) 538-5257. Thank you for your cooperation in completing this permitting action.

Sincerely,

A handwritten signature in black ink, appearing to be 'PB' followed by a stylized flourish.

Paul Baker
Minerals Program Manager

PBB:lah:vs
Task #2611
Attachment: Review
cc: Stan_Perkes@BLM.gov
O:\M047-Uintah\M0470092-WhiteRiverOilShale\final\rev2-12292008.doc

**SECOND REVIEW OF NOTICE OF INTENTION
TO COMMENCE LARGE MINING OPERATIONS**

**Oil Shale Exploration Company. LLC
White River Oil Shale Mine**

**M0470092
December 29, 2008**

General Comments:

Comment #	Sheet/Page / Map/Table #	Comments	Initials	Review Action
1	General	Although it is noted in text that DOGM "rule format" was used, a lot of data was inserted under 106.1 (Minerals to be mined), which was later incorporated under 107 (Operation Practices).	LAH	

R647-4-104 – Operator's, Surface and Mineral Ownership

Comment #	Sheet/Page / Map/Table #	Comments	Initials	Review Action
2	Page 3 Para 4	Include the name of the Registered Agent of the company, such as Daniel Elcan (listed with Utah Department of Commerce).	LAH	
3	Page 3 Para 5	Include the Utah Department of Commerce Entity number 5992091-0160 in written text.	LAH	

R647-4-105 - Maps, Drawings & Photographs

General Map Comments

Comment #	Sheet/Page / Map/Table #	Comments	Initials	Review Action
4	Fig 5A	Do not include location of explosive magazines (submit separate map with confidential stamp).	LAH	

Specific Map Comments

105.1 Topographic base map, boundaries, pre-act disturbance

Comment #	Sheet/Page / Map/Table #	Comments	Initials	Review Action
5	Figure 4, 5A, 5B	Complete surface runoff arrows to the edges of the maps and label. Continue the flow direction arrows onto Figure 5B and label the ephemeral drainages which will intercept discharged ground water. The drainage arrows within the facilities areas are not detailed enough to determine the direction stormwater is going to flow within the disturbed area. Any sites where groundwater is being discharged to the surface and also areas where riprap ditches are being constructed need to be shown as being highlighted and referenced to the MWH report. The MWH report needs to be included physically into the LMO.	Lah TM	

105.2 Drawings or Cross Sections (slopes, roads, pads, etc.)

Comment #	Sheet/Page / Map/Table #	Comments	Initials	Review Action
6	General	Please provide a copy of the Storm Water Pollution Prevention Plan. The minimum plan requirements are listed on page J-2 of Appendix II.J of Permit No: UTR000000.	TM	

105.3 Photographs

Comment #	Sheet/Page / Map/Table #	Comments	Initials	Review Action
7	Page ?	Label Photograph page with page numbers.	LAH	
8	Page ?	Photo 14 - What is the angle of repose dump in the upper right of the photograph? Please label.	LAH	

R647-4-106 - Operation Plan**General Operation Comments**

Comment #	Sheet/Page / Map/Table #	Comments	Initials	Review Action
9	General	Many of the comments listed below under section 106.1 are answered under 107, either reference comments to section in 107 or add the info needed.	LAH	

106.1 Minerals mined

Comment #	Sheet/Page / Map/Table #	Comments	Initials	Review Action
10	Page 6 Para 1	What will be done with the 2% water?	LAH	
11	Page 6 Last Para	If retention dam is used for impounded water, what is the chemical composition of the dewatered water. Reference water quality data.	LAH	
12	Page 7 Para 3	When will monitoring and characterization plan be submitted? Must be Submitted Prior to Approval of NOI.	LAH	
13	Page 7 Para 5 thru Page 8	Water Quality issues need to be referenced. More detail needed on the OSEC decision not to seek the EPA permits (in the Air quality section the document has committed to a set of recognized standards) Under Rule R647-4-109 1. OSEC needs to commit to a set of recognized standards	LAH	
14	Page 9 Para 2	HS&E Plan – Commit to a timeline for including in Appendix D. Such as 30 days prior to beginning mining	LAH	
15	Page 10 - 11 All	Mine dewatering – Reference Water quality data; include method if water does not meet water quality standards.	LAH	
16	Page 11 Last Para	Commit to a timeline for the MSHA approved ventilation plan to be included in the DOGM NOI, such as 30 days prior to...	LAH	

106.2 Type of operations conducted, mining method, processing etc.

Comment #	Sheet/Page / Map/Table #	Comments	Initials	Review Action
17	Page 17 Para 1	Reword paragraph without noting location of explosive magazines.	LAH	
18	Page 18 para 2	Include the SPCC for the plan .	LAH	
19	Page 21 Para 1	What will be the source for the water used to cool the shale?	LAH	
20	Page 21 para 3	"Most"...of this material....reword...or note where the rest of this material will be placed.	LAH	
21	Page 22 Para 4	Where will the test plots be shown? On Figure 15? Documentation is needed as to the location of the test plots	LAH	
22	Page 23 Para 1	Will there be a clay liner HDPE liner, and a leak detection system for the spent shale? What is the leachate geochemistry?	LAH	
23	Page 23 Para 3	Commit to a maximum slope angle for the pile (or a stability Factor of Safety (FOS)).	LAH	

106.3 Estimated acreages disturbed, reclaimed, annually

Comment #	Sheet/Page / Map/Table #	Comments	Initials	Review Action
24	Page 24 Para 2	Where is Table 1? Either state page number or include table list in appendix.	LAH	

106.4 Nature of materials mined, waste and estimated tonnages

Comment #	Sheet/Page / Map/Table #	Comments	Initials	Review Action
25	Page 24 Para 3	Commit to a timeline when the waste rock will be replaced in the mine (ie if Phase 2 is unsuccessful then the unsuitable rock will be replaced within 30 days).	LAH	

106.5 Existing soil types, location, amount

Comment #	Sheet/Page / Map/Table #	Comments	Initials	Review Action
26	General	About 200,000 cubic yards of soil were salvaged during previous operations. One existing soil stockpile is shown on Figure 5A, but the Division understands there is another stockpile. Assuming this is correct, it needs to be shown on one of the maps.	PBB	
27		<p>The operator commits in Section 110.5 to take a soil sample from the area proposed for disturbance and have it analyzed for fertility.</p> <p>Information about the soils needs to be included in the plan. The BLM has provided the Division with laboratory test results from the December 2002 Golder Associates report, and this information would be useful and probably fulfill the soil information requirements. If this information is included in the plan, though, there should be a map or other description of the soil sample locations. The report indicates the samples were taken from various stockpiles and road cuts, but the Division does not know the locations of these sample sites.</p>	PBB	
28		Please include at least a general description of the vegetation growing on the topsoil pile. An estimate of the vegetation cover value for comparison to undisturbed areas is preferred. The Division is particularly concerned about the high sodium adsorption ratios reported in the plan and the effects on plant growth. If the soil pile has adequate vegetation, this concern may be unfounded.	PBB	
29		<p>The plan says that according to the BLM (2007), the soils are poor sources of topsoil because of rock fragments, sodium content, shallow depth to bedrock, steep slopes, carbonate content, and low organic matter content.</p> <p>Since the operator is quoting the BLM, this portion of the plan does not need to be changed, but rock fragments, low organic matter content, and high carbonate content rarely make a poor rangeland soil for the type of area in which the mine is located.</p>	PBB	

106.6 Depth to groundwater, extent of overburden, geology

Comment #	Sheet/Page / Map/Table #	Comments	Initials	Review Action
30	Page 28 Para 3	Is all ground water stratigraphically defined or is there any structurally fault-controlled ground water?	LAH	
31	Page 29 Para 3	The text indicates the Uinta basin is a "structural depression." Depressing rock results in either plastic or brittle deformation. Brittle deformation results in either jointing or faulting. Elsewhere in the Uinta basin the shale is jointed with vertical migration of water. Is there any vertical jointing at the site?	LAH	

106.7 Location & size of ore, waste, tailings, ponds

Comment #	Sheet/Page / Map/Table #	Comments	Initials	Review Action
32	General	Please provide a copy of the Storm Water Pollution Prevention Plan. The minimum plan requirements are listed on page J-2 of Appendix II.J of Permit No. UTR000000.	TM	
33	Page 33 Para 2-3	As noted above more detail is needed on the OSEC and ENVIRON decision to "believe" that discharge of mine water will not impact water quality. Include a placeholder in Appendix G. The Division is concerned that dewatering of the mine at this stage (after coming out of being mothballed as opposed to an active dewatering program that intercepts the water prior to contamination with an oil bearing horizon) is an issue that still needs to be addressed.	LAH	
34	Page 34 Para 2	Will the 19,400 CY of topsoil available from the 200,000 CY be enough for the commitments in reclamation?	LAH	

R647-4-107 - Operation Practices

Comment #	Sheet/Page / Map/Table #	Comments	Initials	Review Action
35	General	Commit to a timeline when each item will be placed in the appendix. The timeline could be tied to key aspects of construction of the mine.	LAH	

107.1 Deleterious material safety stored or removed

Comment #	Sheet/Page / Map/Table #	Comments	Initials	Review Action
36	Page 39 Para 1	"...appropriate agencies will be notified..." It is unclear which agencies will be notified.	LAH	

R647-4-109 - Impact Assessment

109.1 Impacts to surface & groundwater systems

Comment #	Sheet/Page / Map/Table #	Comments	Initials	Review Action
37	Page 43 Para 1	"... all water will be contained. . ."? Note on page 41 paragraph 5 says there is leakage between aquifers.	LAH	
38	General	What will be the criteria and limits for treatment of discharged groundwater?	TM	
39	General	How will the surface water drainage, which will receive 21 million gallons of potentially contaminated water, be monitored? What observations, water quality and velocity criteria will be set up to prevent damage to this drainage and ultimately the receiving area behind the dam? How will these water quality parameters and observational parameters be determined by OSEC without EPA's guidance?	TM	

109.2 Impacts to threatened & endangered wildlife/habitat

Comment #	Sheet/Page / Map/Table #	Comments	Initials	Review Action
40	Page 44	As part of the assessment of potential impacts to threatened and endangered fish species, please identify the amount of water that will be used during this phase of the mine and how water consumption will be monitored.	PBB	

109.3 Slope stability, erosion control, air quality, safety

Comment #	Sheet/Page / Map/Table #	Comments	Initials	Review Action
41	Page 17	Please provide a copy of the Storm Water Pollution Prevention Plan. The minimum plan requirements are listed on page J-2 of Appendix II.J of Permit No. UTR000000. Address erosion control issues.	TM	

R647-4-110 - Reclamation Plan

110.2 Roads, highwalls, slopes, drainages, pits, etc., reclaimed

Comment #	Sheet/Page / Map/Table #	Comments	Initials	Review Action
42	General	The MWH plans for reclamation need should be incorporated into the LMO in the appropriate sections.	TM	

110.4 Description or treatment/disposition of deleterious or acid forming material

Comment #	Sheet/Page / Map/Table #	Comments	Initials	Review Action
43	Page 53 Para 1	What is the location of the vault? Please locate on one of the figures.	LAH	

110.5 Operators Statement

Comment #	Sheet/Page / Map/Table #	Comments	Initials	Review Action
44	Omission	As per rule R647-4-110.6, include a statement, signed by a principal of the operator, that the operator will conduct reclamation as required by the rules.	LAH	

R647-4-113 – Surety

Comment #	Sheet/Page / Map/Table #	Comments	Initials	Review Action
45	General	Nothing to comment on at this time. Please note on February 28, 2008, the following comment was submitted: "Provide the necessary operation and reclamation technical details to determine a final surety amount. This information should be provided in an itemized spreadsheet or other organized fashion."	LAH	

Recommendations:

DOGM recommends the waste piles be regraded in such a way as to lay back the angle. Final sections should be similar to the toe of section F and the crest of section G. As drawn, section F has a near vertical crest, and section G is not utilizing the material in such a way to decrease the angle of repose slope.

According to the plan, Section IV of the Federal Prototype Project Final Baseline Report includes information about soil temperature, moisture, salinity and pH. This may be useful information and might fulfill some of the soil data requirements, but it was not included in the Notice of Intention. The Division suggests that appropriate portions of this report, or data from this report (not the entire report), be included as an appendix.

The plan contains adequate vegetation information to satisfy regulatory requirements, but the Final Baseline Report appears to also contain vegetation information that would be useful. The Division suggests including portions of this report having vegetation information.

The plan says the quantity of soil to be salvaged will be dependent on the quantity available and will be determined in the field by a qualified specialist prior to stripping. It is expected that an average of 12 inches of soil will be saved. Soils sometimes have detrimental characteristics at depth, so the quantity of soil saved should be based on soil analyses in addition to field observations. The Division expects that larger quantities of soil will be available for salvage in the drainages and swales, such as the spent shale disposal area, and the operator needs to save the additional soil that may be available in these areas. In contrast, ridges or similar areas will likely have less soil available.

The Division suggests modifying the seed mix to be used for topsoil stockpiles. One of the purposes of seeding the stockpiles is to get good cover as quickly as possible to reduce erosion. None of the species listed establishes very quickly although Indian ricegrass and western wheatgrass, if they establish, should provide acceptable erosion protection. Altai wild rye is considered difficult to establish and requires a minimum of 12 inches of annual precipitation, which is probably more than this site receives in an average year. The Division suggests substituting Russian wild rye for Altai wild rye, reducing the amount of western wheatgrass to 4

pounds PLS per acre, and adding Siberian wheatgrass at a rate of 2 pounds PLS per acre. The BLM has suggested a seed mix, and this mix would also be acceptable.

To limit the spread of noxious and other weeds, the Division recommends that all earth moving equipment used on site be washed prior to use on the project.